



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,322	04/13/2004	Gabriella Cerrato-Jay	220-291 / TEL0666-01	4510
832	7590	10/30/2006		
BAKER & DANIELS LLP 111 E. WAYNE STREET SUITE 800 FORT WAYNE, IN 46802			EXAMINER LUKS, JEREMY AUSTIN	
			ART UNIT 2837	PAPER NUMBER

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,322

Applicant(s)

CERRATO-JAY ET AL.

Examiner

Jeremy Luks

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-15,17 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6-15, 17 and 20-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1, 8, 15, 17-20, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laimböck (6,305,493) in view of Martinez (4,165,789).

With respect to claims 1, 8, 15, 22 and 26, Laimböck teaches a small, internal combustion engine (See abstract) having an exhaust port (Col 4, Lines 22-23); and a muffler (Figure 1, #1) attached to said exhaust port of said engine (Col. 4, Lines 22-23), said muffler (1) comprising: a muffler housing (26, 27) having an inlet (28) in fluid communication with said exhaust port and an outlet (33) in fluid communication with the atmosphere, an exhaust flow path (show by arrows 14, 15a, 15b, 16a, 16b, 17) defined within said muffler housing (26, 27), said exhaust flow path (show by arrows 14, 15a, 15b, 16a, 16b, 17); said exhaust flow path comprising: a first passage (15a, 15b) in fluid communication with said inlet (28) and disposed substantially within a portion of said muffler housing (27) which is disposed distally from said engine or muffler inlet (28) side; and a second passage (16a, 16b) in fluid communication with said first passage (15a, 15b) and with said outlet (33) and disposed substantially within a portion of said muffler housing (26) which is disposed proximal to said engine or muffler inlet (28) side; each of said first (15a, 15b) and second (16a, 16b) passages being curved through an

Art Unit: 2837

angle of at least 180° ; and at least one expansion volume (18, 19) in fluid communication with said first (15a, 15b) and second (16a, 16b) passages; and two resonance chambers (8, 9) in fluid communication with said exhaust flow path (shown by arrows 14, 15a, 15b, 16a, 16b, 17); a first expansion volume (18) in fluid communication with said inlet (28); said first passage (15a, 15b) in fluid communication with said first expansion volume (18); a second expansion volume (19) in communication with said first passage (15a, 15b); and said second passage (16a, 16b) in fluid communication with said second expansion volume (19) and with said outlet (33), and wherein the first (15a, 15b) and second (16a, 16b) passages have a *substantially* constant cross-sectional area. Laimböck fails to teach wherein the muffler is dimensioned to provide a tuning effect to exhaust gases produced by said engine, the first and second passages are curved through an angle of 270° ; and wherein the second expansion volume is in *fluid* communication with said first passage and are in succession with one another. Martinez teaches a muffler (Figure 2) dimensioned to provide a tuning effect to exhaust gases produced by an engine (Col. 1, Lines 33-35, 49-58), the first (ACD) and second (HJK) passages are curved through an angle of 270° , and having a *substantially* constant cross-sectional area. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Laimböck, with the apparatus of Martinez to tune the muffler to a desired frequency and provide a low cost and small sized muffler. Martinez fails to teach wherein the second expansion volume is in *fluid* communication with said first passage and are in succession with one another. However, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2837

invention was made to have an inlet, first expansion volume, first passage, second expansion volume, second passage, and an outlet all in succession, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. Laimböck further fails to teach a single cylinder internal combustion engine. However, Official notice is taken that it would have been obvious to use the muffler with a single cylinder engine, since using mufflers with a single cylinder engine is well known in the art.

With respect to Claims 6, 17 and 20, Laimböck teaches a first layer (Figure 1, #24) in which a substantial portion of said second passage (16a, 16b) is disposed, said first layer (24) disposed proximate said inlet (28); and a second layer (23) in which a substantial portion of said first passage (15a, 15b) is disposed, said second layer (23) connected to said first layer (24) and disposed distally from said inlet (28); and the first expansion volume (18) disposed intermediate said inlet (28, 30) and said first passage (15a, 15b), and the second expansion volume (19) disposed intermediate said first passage (15a, 15b) and said second passage (16a, 16b).

2. Claims 7, 21 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laimböck (6,305,493) in view of Schumacher (6,076,632). Laimböck teaches a first shell (Figure 1, #24 and 26) including an exhaust inlet (28) and containing a portion of an exhaust passage (16a, 16b), said portion of said exhaust passage (16a, 16b) curved through an angle of at least 180°; a second shell (27 and 23) including an exhaust outlet (33) and containing another portion of said exhaust passage (15a, 15b), said another portion of said exhaust passage (15a, 15b) curved through an

Art Unit: 2837

angle of at least 180°; a partition element (25) disposed between said first (24 and 26) and second shells (23 and 27), said partition element (25) substantially separating said portions of said exhaust passages (15a, 15b; 16a, 16b); wherein said portions of said exhaust passage (15a, 15b; 16a, 16b) each have a *substantially* constant cross-sectional area; and further comprising an expansion volume (19) disposed between said portions of said exhaust passage (16a, 16b); and an expansion volume (18 or 19) defined by said first (24 and 26) and second (23 and 27) shells and disposed proximate said inlet (expansion chamber #18 receives gas from inlet via #30, and expansion volume 19 is disposed proximate to inlet #28/29). Laimböck fails to teach a pipe in fluid communication with said second shell, and extending from said first shell through said partition element and said second shell to said outlets wherein exhaust flows into said muffler through said inlet, through said portion in said second shell and then through said portion in said first shell before exiting said muffler through said outlet.

Schumacher teaches a pipe (Figure 4, #94) in fluid communication with a second shell (16), and extending from a first shell (14) through a partition element (Figure 5, #18 and 20) and said second shell (Figure 4, #16) to an outlet (98) wherein exhaust flows into the muffler (Figure 1, #12) through an inlet (50), through a portion (Figure 6, #72) in said second shell (16) and then through a portion (86) in said first shell (14) before exiting said muffler (Figure 1, #12) through said outlet (Figure 6, #98). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Laimböck, with the apparatus of Schumacher to conduct exhaust flow axially forwardly out of the muffler.

Art Unit: 2837

3. Claims 9-11 and 13-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Laimböck (6,305,493) in view of Muramatsu (5,674,099). Laimböck teaches a small, internal combustion engine (See abstract) having an exhaust port (Col 4, Lines 22-23); and a muffler (Figure 1, #1) attached to said exhaust port of said engine (Col. 4, Lines 22-23), said muffler (1) comprising: a muffler housing (26, 27) having an inlet (28), an exhaust flow path (show by arrows 14, 15a, 15b, 16a, 16b, 17) defined within said muffler housing (26, 27), said exhaust flow path (show by arrows 14, 15a, 15b, 16a, 16b, 17); said exhaust flow path comprising first (15a, 15b) and second (16a, 16b) passages, each of said first (15a, 15b) and second (16a, 16b) passages being curved through an angle of at least 180°; and at least one expansion volume (18, 19) in fluid communication with said first (15a, 15b) and second (16a, 16b) passages; and two resonance chambers (8, 9) in fluid communication with said exhaust flow path (show by arrows 14, 15a, 15b, 16a, 16b, 17); a first expansion volume (18) in fluid communication with said inlet (28); said first passage (15a, 15b) in fluid communication with said first expansion volume (18); a second expansion volume (19) in communication with said first passage (15a, 15b); and said second passage (16a, 16b) in fluid communication with said second expansion volume (19) and with said outlet (33), and wherein the first (15a, 15b) and second (16a, 16b) passages have a *substantially* constant cross-sectional area; and a first layer (Figure 1, #24) in which a substantial portion of said second passage (16a, 16b) is disposed, said first layer (24) disposed proximate said inlet (28); and a second layer (23) in which a substantial portion of said first passage (15a, 15b) is disposed, said second layer (23) connected to said first layer (24) and

Art Unit: 2837

disposed distally from said inlet (28). Laimböck fails to teach at least one closed-end resonance chamber in fluid communication with said exhaust flow path proximate said outlet. Muramatsu teaches a closed-end resonance chamber (Figures 4 and 5, #162) in fluid communication with an exhaust flow path (see flow arrows in Figures 4 and 5) proximate said outlet (Figure 5, #170). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Laimböck, with the apparatus of Muramatsu to better attenuate sound in the muffler apparatus.

Muramatsu fails to teach wherein the second expansion volume is in *fluid* communication with said first passage and are in succession with one another.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an inlet, first expansion volume, first passage, second expansion volume, second passage, and an outlet all in succession, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. Laimböck and Muramatsu further fail to teach a single cylinder internal combustion engine. However, Official notice is taken that it would have been obvious to use the muffler with a single cylinder engine, since using mufflers with a single cylinder engine is well known in the art.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laimböck (6,305,493) in view of Muramatsu (5,674,099) as applied to claim 9 above, and further in view of Schumacher (6,076,632). Laimböck and Muramatsu are relied upon for the reasons and disclosures set forth above. Laimböck and Muramatsu fail to

Art Unit: 2837

teach a tail pipe in fluid communication with said second passage and with said outlet.

Schumacher teaches a pipe (Figure 4, #94) in fluid communication with a second passage (88) and with said outlet (Figure 6, #98). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Laimböck, with the apparatus of Schumacher to conduct exhaust flow axially forwardly out of the muffler.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 6-15, 17 and 20-26 have been considered but are moot in view of the new ground(s) of rejection. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). While Laimböck teaches a flow path angled up to 270 degrees, there is no teaching given to specifically exclude other angles that do not fall in the range given. In fact, Laimböck states that the angular range given is preferred (Col. 2, Lines 14-16). Therefore, modifying Laimböck with Martinez does not take away from the teachings of Laimböck, but rather ranges the range of sound attenuated. It has been held that where the general conditions of a claim

Art Unit: 2837

are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233. Regarding the argument that Laimböck does not teach a substantially constant cross-sectional for the first and second passages. At a closer look at Figure 1, it is the dotted lines, which outline and make up the first and second passages (15a, 15b, 16a, 16b), not the outer portions of the diffuser cones. The passages enclosed by the dotted lines show a substantially constant cross-sectional. Further Martinez shows passages having a substantially constant cross-sectional, and it would have been an obvious design choice to employ a substantially constant cross-sectional area, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2837

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks
Patent Examiner
Art Unit 2837


LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER